Lampiran 2

Stress Analysis Report

Autodesk®

Analyzed File:	Assembly SA.iam
Autodesk Inventor Version:	2012 (Build 160160000, 160)
Creation Date:	9/21/2015, 9:59 PM
Simulation Author:	Abdy
Summary:	

Project Info (iProperties)

Summary

Author	Abdy

Project

Part Number	Assembly SA
Designer	Abdy
Cost	$0.00
Date Created	8/20/2015

Status

Design Status	WorkInProgress

Physical

Mass	60.7752 kg
Area	4836650 mm^2
Volume	7724880 mm^3
Center of Gravity	x=-103.79 mm y=563.325 mm z=-470.817 mm

Note: Physical values could be different from Physical values used by FEA reported below.

General objective and settings:

Design Objective	Single Point
Simulation Type	Static Analysis
Last Modification Date	9/21/2015, 9:54 PM
Detect and Eliminate Rigid Body Modes	No
Separate Stresses Across Contact Surfaces	No
Motion Loads Analysis	No

Advanced settings:

Avg. Element Size (fraction of model diameter)	0.1
Min. Element Size (fraction of avg. size)	0.2
Grading Factor	1.5
Max. Turn Angle	60 deg
Create Curved Mesh Elements	No
Use part based measure for Assembly mesh	Yes

Material(s)

Name	Steel, Mild	
General	Mass Density	7.86 g/cm^3
	Yield Strength	207 MPa
	Ultimate Tensile Strength	345 MPa
Stress	Young's Modulus	220 GPa
	Poisson's Ratio	0.275 ul
	Shear Modulus	86.2745 GPa
Stress Thermal	Expansion Coefficient	0.000012 ul/c
	Thermal Conductivity	56 W/(m K)
	Specific Heat	460 J/(kg c)
Part Name(s)	ISO 60x40x3 00000001 ISO 60x40x3 00000002 ISO 60x40x3 00000003 ISO 60x40x3 00000001 ISO 60x40x3 00000002 ISO 60x40x3 00000003 Plat Pengikat.ipt Plat Pengikat.ipt Plat Pengikat.ipt Plat Pengikat.ipt Plat Pengikat.ipt Plat Pengikat.ipt Plat Pengikat.ipt Plat Pengikat.ipt ISO 40x40x3 00000001	

	ISO 40x40x3 00000001 ISO 60x40x3 00000001 Siku.ipt Siku.ipt Siku.ipt Siku.ipt Braket Bawah.ipt Braket Motor Bawah.ipt Braket Motor Atas.ipt Braket Torch.ipt Pipa.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt Bearing d 22 mm.ipt

Name	Stainless Steel	
General	Mass Density	8.08 g/cm^3
	Yield Strength	250 MPa
	Ultimate Tensile Strength	0 MPa
Stress	Young's Modulus	193 GPa
	Poisson's Ratio	0.3 ul
	Shear Modulus	74.2308 GPa
Stress Thermal	Expansion Coefficient	0.0000104 ul/c
	Thermal Conductivity	16 W/(m K)
	Specific Heat	477 J/(kg c)
Part Name(s)	ISO 5251 Equal Tee DN20 3.2 ISO 5251 Equal Tee DN20 3.2 baut M8 x1 80 mm.ipt baut M8 x1 80 mm.ipt baut M8 x1 90 mm.ipt baut M8 x1 90 mm.ipt baut M8 x1 90 mm.ipt baut M8 x1 90 mm.ipt baut M8 x1 90 mm.ipt baut M8 x1 90 mm.ipt Baut M16 x1 30 mm.ipt	

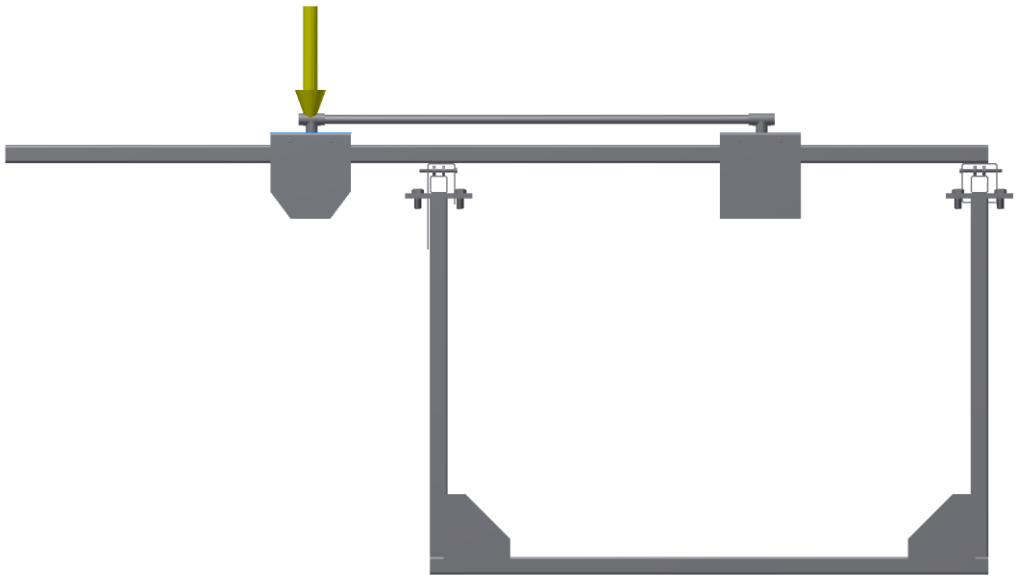
	Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt Baut M16 x1 30 mm.ipt

Operating conditions

Force:1

Load Type	Force
Magnitude	300.000 N
Vector X	-0.000 N
Vector Y	-300.000 N
Vector Z	-0.000 N

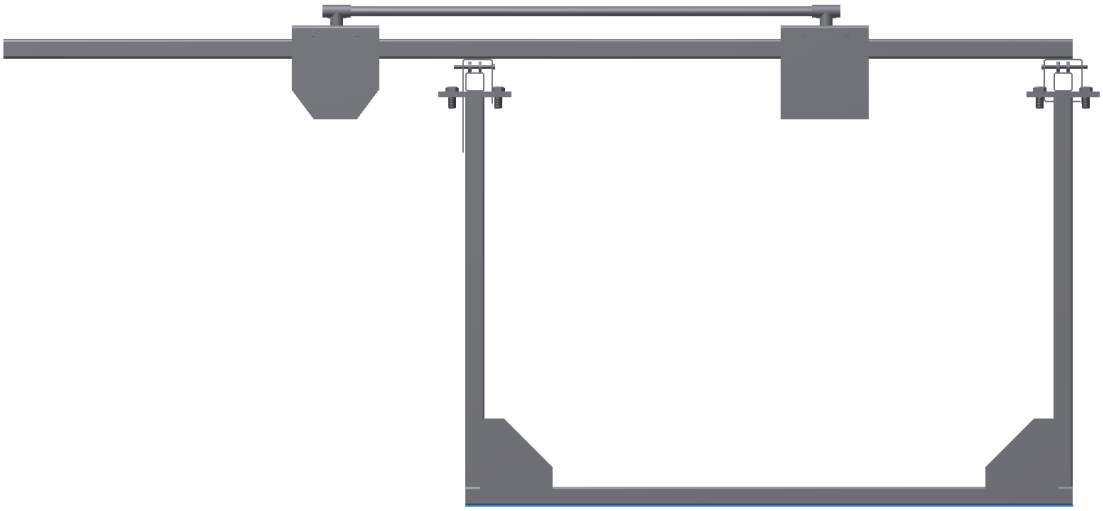
Selected Face(s)



Fixed Constraint:1

Constraint Type	Fixed Constraint

Selected Face(s)



Results

Reaction Force and Moment on Constraints

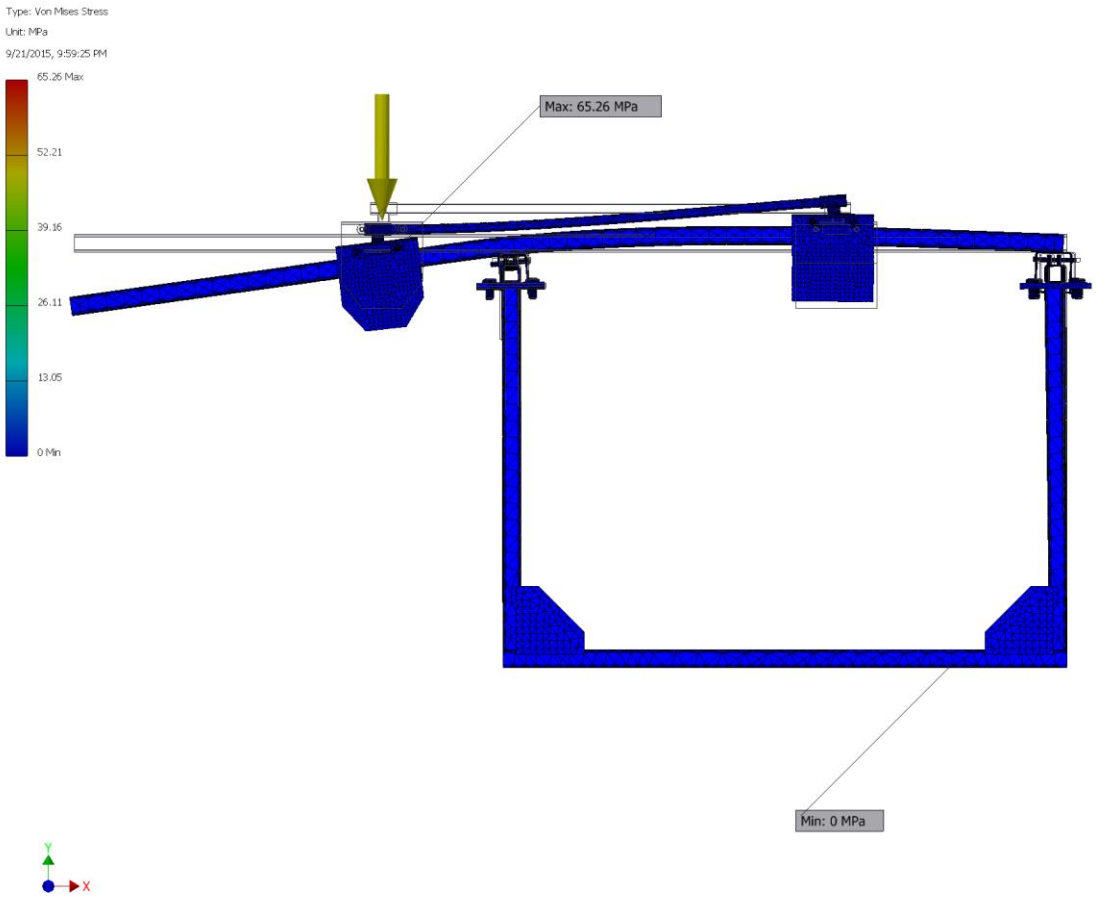
Constraint Name	Reaction Force		Reaction Moment	
	Magnitude	Component (X,Y,Z)	Magnitude	Component (X,Y,Z)
Fixed Constraint:1	300 N	0 N	241.947 N m	-115.228 N m
		300 N		-2.16701 N m
		0 N		-212.735 N m

Result Summary

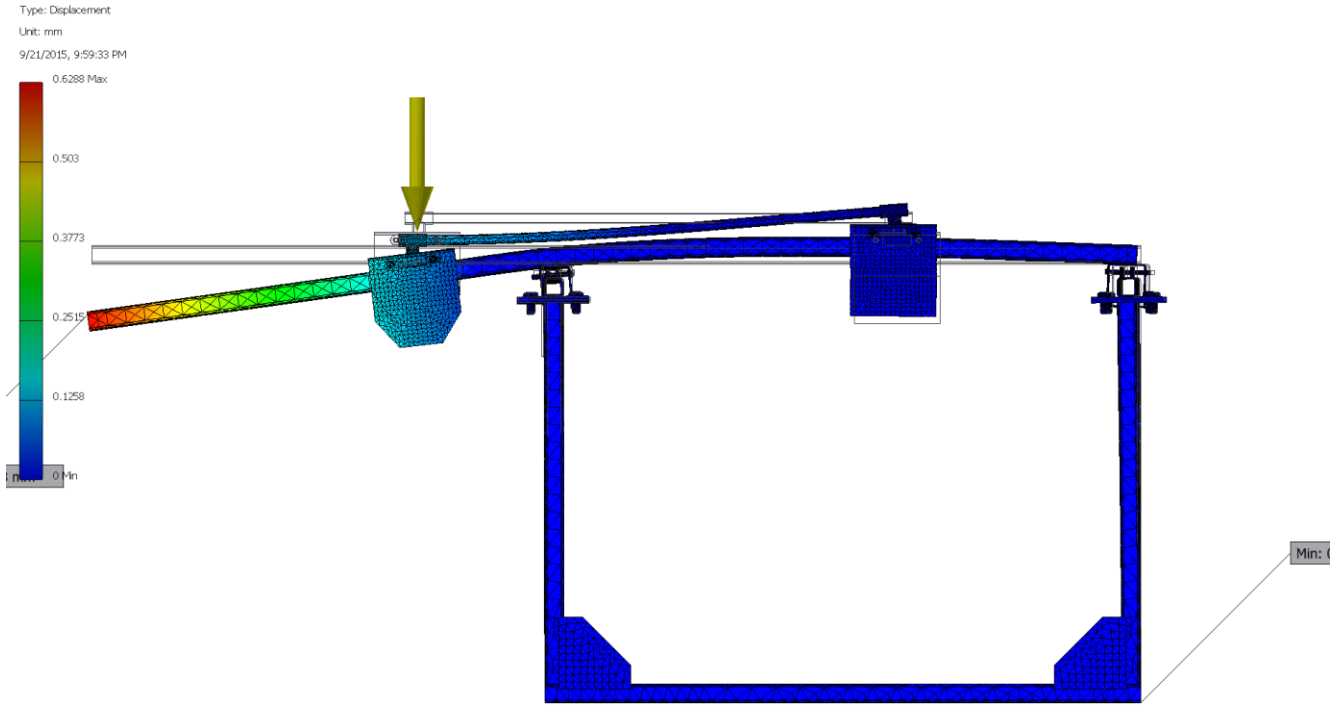
Name	Minimum	Maximum
Volume	7724890 mm^3	
Mass	60.7753 kg	
Von Mises Stress	0.0000198439 MPa	65.263 MPa
1st Principal Stress	-21.565 MPa	49.2931 MPa
3rd Principal Stress	-73.926 MPa	11.5305 MPa
Displacement	0 mm	0.62878 mm
Safety Factor	3.17178 ul	15 ul

Figures

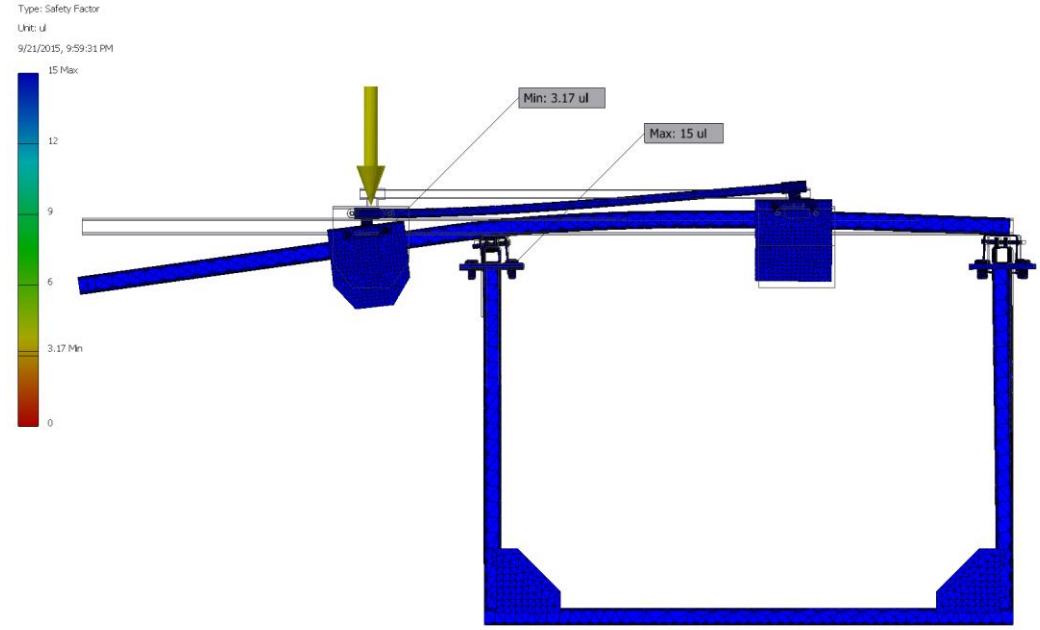
Von Mises Stress



Displacement



Safety Factor



D:\TIO\3D Stress Analysis\Assembly SA.iam